EOS Science Networks
Performance Report

This is a summary of EOS QA SCF performance testing for the first quarter of 2005 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, Aura, SAGE III, and ICESat requirements

Up to date graphical results can be found on the EOS network performance web site: http://ensight.eos.nasa.gov/active_net_measure.html. Or click on any of the individual site links below.

Highlights:

- Problems at GSFC with outflow from the ICESAT test source were reduced, improving the ratings of several ICESAT sites.

- Otherwise, mostly stable performance.

- Abilene has changed their policy to allow NISN sources to transit Abilene to get to international peers (on a case by case basis). This could be very useful for EOS, e.g., LaRC → UCL (London)

- The May '04 requirements are now used as the basis for the ratings; ADEOS 2 requirements have been removed.

Ratings:

Rating Categories:

Excellent : median of daily worst cases > 3 x requirement
Good : median of daily worst cases > requirement

Adequate : median of daily worst cases < requirement
                          and
            median of daily medians > requirement

Low : median of daily medians < requirement.
Bad : median of daily medians < 1/3 of the requirement.

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0
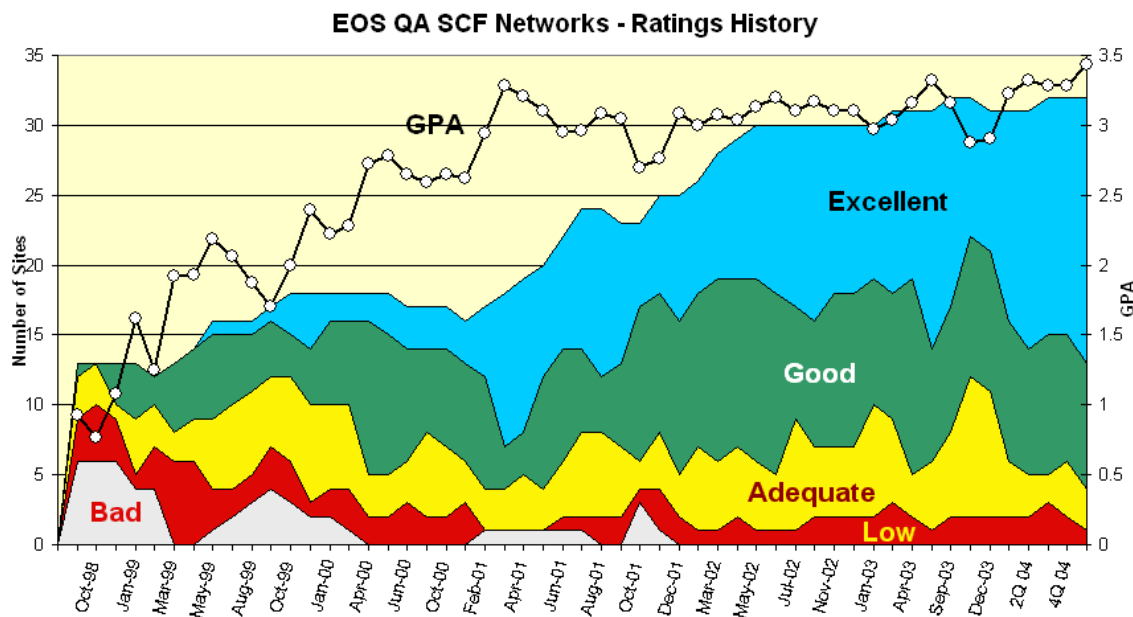
Ratings Changes:

Upgrades: ⬆
      JPL → RSS: Low → Adequate
      GSFC-ICESAT → MIT: Adequate → **Excellent**
      GSFC-ICESAT → Ohio State: Good → **Excellent**
      GSFC-ICESAT → Washington: Adequate → **Good**

Downgrades: ⬇ None

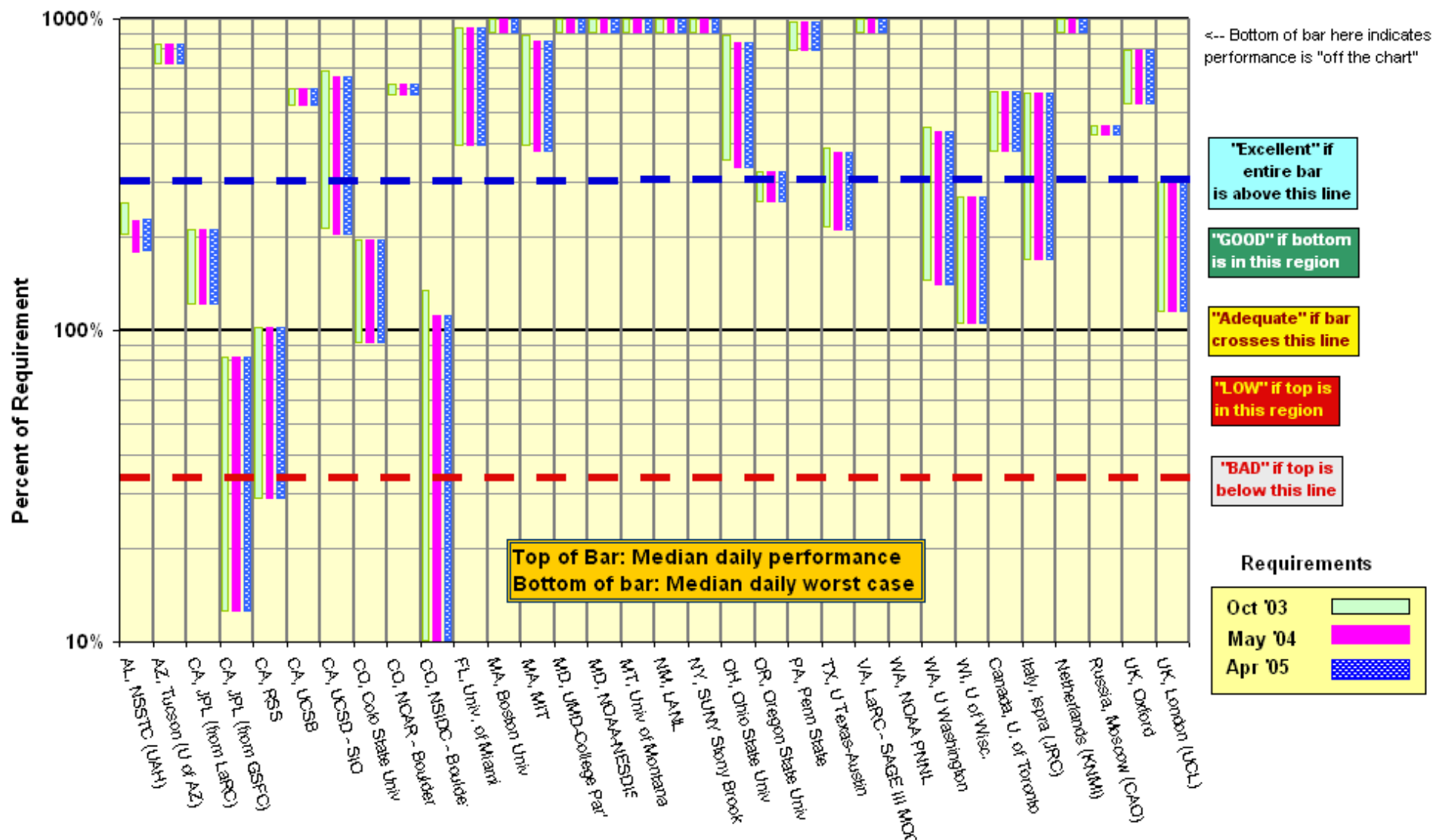**New Tests:**
      UIUC: Excellent

Testing Stopped:
      PNNL

EOS QA SCF Sites: Network Requirements vs. Measured Performance

1 Q 2005 Destination	Team (s)	Requirements (kbps) Previous: May-04	Current: Apr-05	Future: Feb-06	Source Node	Median kbps	Median Daily Worst	Rating re Current Requirements Apr-05	Prev	Rating re Feb-06	Route Tested	Upgrade
AL, NSSTC (UAH)	CERES, AMSR-E	6236	7127	7034	LaTIS	15970	12584	GOOD	G	GOOD	NISN + FDDI	Abilene
AZ, Tucson (U of AZ)	MODIS, MISR	2811	2811	2811	EROS LPDAAC	23455	20072	Excellent	E	Excellent	Abilene via vBNS+ / DC	
CA, JPL (from LaRC)	MISR	18484	18483	18483	LaRC DAAC	38870	22226	GOOD	G	GOOD	EMSnet	
CA, JPL (from GSFC)	AIRS, TES, others	18088	18088	18088	GDAAC	14863	2257	LOW	L	LOW	NISN SIP	Increase VC
CA, RSS	AMSR-E	2696	2696	2696	JPL-PODAAC	2747	771	Adequate	L	Adequate	2 * T1 - Consolidated	Increase Circuit
CA, UCSB	MODIS	3126	3126	3126	GDAAC	18615	16365	Excellent	E	Excellent	Abilene via MAX	
CA, UCSD - SIO	ICESAT, CERES	6792	7107	7107	GSFC-ICESAT	46268	14268	GOOD	G	GOOD	Abilene via NISN / MAX	
CO, Colo State Univ	CERES	2147	2147	2147	LaTIS	4167	1936	Adequate	A	Adequate	NISN -> Abilene via Chicago	host interface
CO, NCAR - Boulder	MOPITT, HIRDLS	3121	3121	3121	LaRC DAAC	19361	17660	Excellent	E	Excellent	NISN -> Abilene via Chicago	Abilene via NISN / MAX
CO, NSIDC - Boulder	AMSR	6248	7497	7497	NSSTC	8371	252	Adequate	A	Adequate	NISN SIP	
FL, Univ. of Miami	MODIS, MISR	18823	18823	18823	GDAAC	175952	73344	Excellent	E	Excellent	Abilene via MAX	
IL, UIUC	MISR	1133	1133	1133	LaRC DAAC	10635	7481	Excellent	n/a	Excellent	NISN -> Abilene via Chicago	Abilene via NISN / MAX
MA, Boston Univ	MODIS, MISR	3035	3035	3035	EROS LPDAAC	67385	44477	Excellent	E	Excellent	Abilene via vBNS+ / DC	
MA, MIT	ICESAT	6692	7007	7007	GSFC-ICESAT	59607	26067	Excellent	A	Excellent	Abilene via NISN / MAX	
MD, UMD-College Park	MODIS	2039	2039	2039	GSFC-MAX	74128	71434	Excellent	E	Excellent	Direct Fiber	
MD, NOAA-NESDIS	CERES, AMSR-E	1517	1517	1517	NSIDC	25890	20381	Excellent	E	Excellent	Abilene via FRGP, MAX	
MT, Univ of Montana	MODIS	819	819	819	EROS LPDAAC	17005	8445	Excellent	E	Excellent	Abilene via vBNS+ / DC	
NM, LANL	MISR	1033	1033	1033	LaRC DAAC	15990	13341	Excellent	E	Excellent	NISN -> ESNet via CA	
NY, SUNY Stony Brook	CERES	573	573	573	LaTIS	22521	12019	Excellent	E	Excellent	NISN -> Abilene via Chicago	Abilene via NISN / MAX
OH, Ohio State Univ	ICESAT	5992	6307	6307	GSFC-ICESAT	53024	20915	Excellent	G	Excellent	Abilene via NISN / MAX	
OR, Oregon State Univ	CERES, MODIS	7570	7570	7570	LaTIS	24563	19457	GOOD	G	GOOD	NISN -> Abilene via Chicago	Abilene via NISN / MAX
PA, Penn State	MISR	2642	2642	2642	LaRC DAAC	25833	20666	Excellent	E	Excellent	NISN -> Abilene via Chicago	Abilene via NISN / MAX
TX, U Texas-Austin	ICESAT	10745	11060	11060	GSFC-ICESAT	41269	23001	GOOD	G	GOOD	Abilene via NISN / MAX	
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS	6691	3876	Excellent	E	Excellent	NISN SIP	
WA, NOAA PNNL	MISR	1442	1442	1442	Testing stopped Nov 04				E		NISN -> ESNet via Chicago	
WA, U Washington	ICESAT	11374	11746	11746	GSFC-ICESAT	50996	16318	GOOD	A	GOOD	Abilene via NISN / MAX	
WI, U of Wisc.	MODIS, CERES, AIRS	16461	16461	16461	GDAAC	44264	17166	GOOD	G	GOOD	Abilene via MAX	
Canada, U. of Toronto	MOPITT	612	612	612	LaRC DAAC	3566	2277	Excellent	E	Excellent	NISN-CA*net4	
Italy, Ispra (JRC)	MISR	517	517	517	LaRC DAAC	2993	869	GOOD	G	GOOD	NISN-UUNET-Milan	
Netherlands (KNMI)	OMI	1024	1024	1024	GSFC-MAX	23470	18044	Excellent	E	Excellent	Abilene --> NY -> Surfnet	
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-->LaRC-N	119	109	Excellent	E	Excellent	NISN -> Moscow	
UK, Oxford	HIRDLS	512	512	512	GSFC-MAX	4076	2718	Excellent	E	Excellent	Abilene->Geant (NY) -> JAnet	
UK, London (UCL)	MISR, MODIS	1033	1033	1033	LaRC DAAC	3084	1183	GOOD	G	GOOD	NISN / Level3 (San Jose)	Abilene->Geant (NY) -> JAnet

	*Rating Criteria:					Rating	Current Apr-05	Last Report	Future: Feb-06		
Excellent	Median of Daily worst hours >= 3 *Requirement					Excellent	19	17	19		
GOOD	Median of Daily worst hours >= Requirement					GOOD	9	9	9		
Adequate	Median of Daily worst hours < Requirement <= Median of Daily Medians					Adequate	3	4	3		
LOW	Requirement > Median of Daily Medians					LOW	1	2	1		
BAD	Requirement > 3 * Median of Daily Medians					BAD	0	0	0		
						Total	32	32	32		
						GPA	3.44	3.28	3.44		

EOS QA SCF Sites
Daily Median and Worst Performance as a percent of Requirements

<-- Bottom of bar here indicates performance is "off the chart"

"Excellent" if entire bar is above this line

"GOOD" if bottom is in this region

"Adequate" if bar crosses this line

"LOW" if top is in this region

"BAD" if top is below this line

Top of Bar: Median daily performance
Bottom of bar: Median daily worst case

Requirements

Oct '03
May '04
Apr '05

Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)   Rating: Continued Good

Teams: CERES, AMSR   Domain: nsstc.uah.edu
Web Page:http://ensight.eos.nasa.gov/Missions/terra/NSSTC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	16.3	16.0	12.6	NISN SIP
GSFC	20.9	20.0	10.2	NISN SIP
NSIDC	5.4	5.3	2.6	NISN SIP
NSSTC → NSIDC	8.5	8.4	0.3	NISN SIP

Requirements:

Source Node	Date	Mbps	Rating
LaRC LaTIS	Oct '03	4.9	Good
LaRC LaTIS	May '04	6.2	Good
LaRC LaTIS	Apr '05	7.1	Good

Comments: Thruput from LaTIS improved to the levels above in late October '04, improving the rating to "Good". Thruput from GSFC has been mostly stable since April '03. Thruput between NSSTC and NSIDC remains limited by the NISN PVC at NSIDC and congestion.

2) AZ, Tucson (U of AZ):   Rating: Continued Excellent

Teams: MODIS   Domain: arizona.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/ARIZONA.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS LPDAAC	31.6	23.5	20.1	Abilene via vBNS+ / DC
GSFC	33.7	28.5	24.3	Abilene via MAX
LaRC DAAC	26.3	25.7	19.7	Abilene via NISN / Chicago

Requirements:

Source Node	FY	Mbps	Rating
EROS LPDAAC	'03 - '05	2.8	Excellent

Comments: The ratings are based on the MODIS flow from EROS (There is no longer a requirement from LaRC, as the MISR team has all moved away from Arizona).

Performance was stable from all sources, keeping the rating "Excellent".

3) CA, JPL:

Teams: MISR, AIRS, TES, MLS, ASTER
Domain: jpl.nasa.gov
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml
                    http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

Ratings: GSFC: Continued Low
         LaRC: Continued Good

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC → MISR	40.9	38.9	22.2	EMSnet → NISN PIP (iperf)
LaRC DAAC → MISR	22.1	21.1	9.8	EMSnet → NISN PIP (ftp)
GSFC DAAC → AIRS	18.8	14.9	2.3	NISN SIP
GSFC → MISR	19.5	15.5	5.4	NISN PIP

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03 - '05	18.5	Good
GSFC DAAC	'04, 05	18.1	Low

Comments:. In mid February, the LDAAC to MISR route was switched from EMSnet to NISN PIP. After some adjustments, performance was about the same, but with some what increased variability. The results above are a composite of both routes, rating "Good". FTP testing was limited by window size, and got about half the thruput (multiple streams were used with iperf).

Testing to AIRS is from GDAAC, and is believed to continue to use SIP. Thruput from GDAAC to JPL-AIRS has been generally steady since September '02. The daily median is slightly below the requirement, thus a FY'03-'05 rating of "LOW". The low value for the daily worst indicates that there is considerable congestion in this path.

Testing from the GSFC campus to JPL has been routed via NISN PIP since September '02, with very steady performance.

4) CA, RSS: (Santa Rosa):

Teams: AMSR
Web page: http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml

Ratings: ↑ Low → Adequate
Domain: remss.com

Test Results:

Source Node	Medians of daily tests (Mbps)			Route
	Best	Median	Worst	
JPL PODAAC	2.84	2.75	0.77	NISN SIP: 2 x T1
GSFC	2.50	2.15	0.67	NISN SIP: 2 x T1

Requirements:

Source Node	FY	Mbps	Rating
JPL PODAAC	'04 – '05	2.70	Adequate

Comments: Thruput has been quite stable since August '02, about as good as can be expected from a pair of T1s. However, there was less variation this period, probably as a result of decreased user flow, and the median thruput from JPL increased to a bit below the requirement, improving the rating to "Adequate".

Note: RSS also has a requirement to flow data to NSSTC (see #1); it is not tested. The requirement is 900 kbps in FY '03, but grows to 3.1 mbps in FY'04 and 4.4 mbps in FY'05. While the FY'03 requirement is achievable with the 2 x T1 configuration, the FY'03 and '04 flows are not. An upgrade is in process at this time.

5) CA, UCSB :

Teams: MODIS
Domain: ucsb.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/UCSB.shtml

Ratings: GSFC: Continued **Excellent**
EROS: Continued **Excellent**

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	20.4	18.6	16.4	Abilene via NISN / MAX
EROS-LPDAAC	17.4	14.8	13.6	Abilene via vBNS+ / DC

Requirements:

Source Node	FY	mbps	Rating
GSFC-DAAC	'04, '05	3.1	**Excellent**
EROS-LPDAAC	'04, '05	2.2	**Excellent**

Comments: The requirements are split between EROS and GSFC. Performance from both GSFC and EROS is very steady. The rating remains "Excellent" from both sites.

6) CA, UCSD (SIO) :

Teams: CERES, ICESAT
Domain: ucsd.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/UCSD.shtml

Ratings: ICESAT: Continued **Good**
LaTIS: Continued **Excellent**

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	66.9	46.3	14.3	Abilene via NISN / MAX
LaTIS	26.2	25.2	21.1	Abilene via NISN / Chi
GSFC-PTH	48.4	47.7	33.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'05	7.0	**Good**
LaTIS	'02 - '05	0.26	**Excellent**

Comments: The rating is based on testing from the ICESAT SCF at GSFC. The daily worst from ICESAT remained below 3 x the requirement, keeping the rating "Good". The difference in the daily worst value between the performance from ICESAT and GSFC-PTH shows that there is some congestion at GSFC congestion from ICESAT

Performance from LaTIS has been stable since April '03. The CERES requirements are much lower than ICESAT, so the LaTIS rating continues as "Excellent".

7) CO, Colo State Univ.:   Rating: Continued Adequate
Teams: CERES   Domain: colostate.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/COLO_ST.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	4.41	4.17	1.94	Abilene via NISN / Chicago
GSFC	7.15	7.12	6.65	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04, '05	2.05	Adequate

Comments: Performance from both LaTIS and GSFC has been stable since December '03. The daily worst from LaTIS remained slightly below '05 requirement indicating congestion on the NISN-Chicago link. So the rating remains "Adequate". Performance from GSFC would rate as "Excellent".

8) CO, NCAR: Ratings: GSFC: Continued Excellent
                                     LaRC: Excellent
Teams: MOPITT, HIRDLS
Domain: scd.ucar.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	19.5	19.4	17.7	Abilene via NISN / Chicago
GSFC-MAX	78.5	72.6	38.0	Abilene via MAX
EROS LPDAAC	82.2	55.8	41.7	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	Mbps	Rating
LaRC DAAC	'03 - '05	2.4	Excellent
GSFC	'04, '05	3.1	Excellent

Comments: The rating is based on both GSFC and LDAAC. Performance from LDAAC was steady at close to 20 mbps, and rates "Excellent"

Performance from GSFC to the new NCAR host dropped in early October It is believed that there is a problem due to a Gig-E source at GSFC, and a fast WAN, connecting via a switch to a Fast-E destination at NCAR. The burstiness of TCP overloads the output port on bottleneck switch, thus causing packet loss, and degraded TCP performance. Nevertheless, the median daily worst remains far above 3 x the requirement, so the ratings remain "Excellent"".

9) FL, Univ. of Miami:

Rating: GSFC: Continued **Excellent**
LaRC: Continued **Excellent**

Teams: MODIS, MISR
Domain: rsmas.miami.edu
Web page: http://ensight.eos.nasa.gov/Missions/terra/MIAMI.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	195.4	176.0	73.3	Abilene via MAX
GSFC-MAX	207.6	149.5	58.3	Abilene via MAX
LaRC DAAC	26.5	24.7	13.2	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '05	18.8	**Excellent**
LaRC DAAC	'04 - '05	1.1	**Excellent**

Comments: Thruput from GDAAC has been stable since the GDAAC firewall upgrade in late November '03. The rating remains "Excellent".

Performance from LaRC DAAC has been stable since May '03, also rating "Excellent".

10) IL, UIUC:

Rating: **Excellent**

Domain: uiuc.edu
Teams: MISR
Web Page: http://ensight.eos.nasa.gov/Missions/terra/UIUC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	10.9	10.6	7.5	Abilene via NISN / Chicago
GSFC-MAX	18.1	17.7	17.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'04 - '05	1.13	**Excellent**

Comments: New test:-- Performance well above the modest requirement, rating "Excellent".

11) MA, Boston Univ:

Ratings: EROS: Continued **Excellent**
LaRC: Continued **Excellent**

Domain: bu.edu
Teams: MODIS, MISR
Web Page: http://ensight.eos.nasa.gov/Missions/terra/BU.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EROS DAAC	80.2	67.4	44.5	Abilene via vBNS+ / DC
GSFC	90.9	83.3	44.4	Abilene via MAX
LaRC DAAC	26.6	26.2	20.7	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EROS DAAC	'04 - '05	3.0	**Excellent**
LaRC DAAC	'04 - '05	1.2	**Excellent**

Comments: Performance from all sources remained stable. The rating remains "Excellent".

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12) MA, MIT: Rating: ↑ Adequate → **Excellent**
Teams: ICESAT   Domain: mit.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/MIT.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-ICESAT	74.0	59.6	26.1	Abilene via NISN / MAX
GSFC-MAX	89.1	82.4	68.0	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	6.7, 7.0	**Excellent**

Comments: Performance from GSFC ICESAT to MIT is still subject to congestion inside GSFC, but not as much as previously. The daily worst is now above 3 x the requirement, improving the rating to "Excellent". From GSFC-MAX there is much less congestion apparent.

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13) MD, NOAA-NESDIS (Camp Springs)   Rating: Continued **Excellent**
Teams: CERES, AMSR-E   Domain: nesdis.noaa.gov
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/NOAA_Camp_Springs.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
NSIDC	26.2	25.9	20.4	FRGP / Abilene / MAX
LaTIS	26.9	23.1	7.2	
GSFC-MODIS	32.6	31.6	29.5	Peering at MAX

Requirements (QA only):

Source Node	FY	mbps	Rating
NSIDC	'02 – '05	1.52	**Excellent**
LaTIS	'02 – '05	0.21	**Excellent**

Comments: The performance from all sources has been stable since it improved around mid August '04, due to upgrades at NOAA. The rating remains "Excellent" from both NSIDC and LaTIS..

14) MD, Univ. of Maryland: Rating: Continued **Excellent**
Teams: MODIS   Domain: umd.edu
Web Pages: http://ensight.eos.nasa.gov/Missions/terra/UMD_SCF.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-MAX	74.8	74.1	71.4	Direct Fiber OC-12 / MAX / SCF
EROS LPDAAC	70.0	54.4	36.4	VBNS+ / Abilene / MAX / SCF
NSIDC	40.6	33.6	30.0	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02 – '05	2.0	**Excellent**

Comments: Note: the UMD test node went down in early January, so the results above reflect only about 1 week of testing. Testing was restored with a replacement node in mid May – performance improved at that time.

The performance above was very stable and about the same as previously. Due to the modest requirement, all of these performance levels rate as "Excellent"

15) MT, Univ of Montana: Rating: Continued **Excellent**
Teams: MODIS   Domain: ntsg.umt.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/MONT.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
EROS LPDAAC	18.9	17.0	8.4	VBNS+ / DC / Abilene
GSFC	37.1	28.1	15.6	MAX / Abilene
NSIDC	38.9	28.2	15.1	CU / FRG / Abilene

Requirements:

Source Node	FY	mbps	Rating
EROS LPDAAC	'04 - '05	0.82	**Excellent**

Comments:. Stable performance from all sources. However, there is a noticeable diurnal cycle from all sources. With the low requirements, however, the rating continues as "Excellent".

16) NM, LANL: Rating: Continued **Excellent**

Teams: MISR   Domain: lanl.gov
Web Page: http://ensight.eos.nasa.gov/Missions/terra/LANL.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
LaRC DAAC	16.2	16.0	13.3	NISN SIP / MAE-W (Ames) / ESnet
GSFC	16.9	16.8	16.0	MAX / ESnet

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	1.03	**Excellent**

Comments: Performance from both LDAAC and GDAAC was stable since the ESnet upgrade in early July '04. The rating remains "Excellent"

17) NY, SUNY-SB: Rating: Continued **Excellent**

Teams: CERES, MODIS   Domain: sunysb.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/SUNYSB.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
LaTIS	25.6	22.5	12.0	NISN SIP / Chicago / Abilene / NYSERnet
GSFC	51.6	46.4	32.8	MAX / Abilene / NYSERnet

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02-'05	0.57	**Excellent**

Comments: Performance from LaTIS has been generally stable since October '03. Higher, but noisy performance from GSFC. With the low requirement, the rating remains "Excellent".

18) OH, Ohio State Univ: Rating: ↑ Good → **Excellent**

Teams: ICESAT   Domain: ohio-state.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/OHIO_STATE.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-ICESAT	68.9	53.0	20.9	Abilene via NISN / MAX
GSFC-MAX	60.0	53.4	41.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	6.0, 6.3	**Excellent**

Comments: Like other ICESAT sites, the congestion at ICESAT was reduced, but still present. The daily worst from ICESAT is now more than 3 x the requirement, so the rating improves to "Excellent". Without this congestion, the daily worst from GSFC-MAX is much higher – although the daily median and maximum are similar..

19) OR, Oregon State Univ:

Ratings: LaTIS: Continued **Good**
GSFC: Continued **Excellent**

Domain: oce.orst.edu
Teams: CERES, MODIS
Web Page: http://ensight.eos.nasa.gov/Missions/terra/ORST.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
LaTIS	26.2	24.6	19.5	Abilene via NISN / Chicago
JPL	73.2	48.8	10.8	Abilene via CalRen
GSFC	52.6	28.6	9.9	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'04 - '05	7.5	**Good**
GDAAC	'02 - '05	0.25	**Excellent**

Comments: Performance from all sources stable (but noisier than expected from all sources, especially nearby JPL); the rating from LDAAC remains "Good" (close to "Excellent").

20) PA: Penn State Univ:

Rating: Continued **Excellent**

Teams:MISR   Domain: psu.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/PENN_STATE.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
LaRC DAAC	26.5	25.8	20.7	Abilene via NISN / Chicago
GSFC	161.2	159.9	146.3	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	2.6	**Excellent**

Comments: Performance from LDAAC was very stable; the rating remains "Excellent". Performance from GSFC improved to the above levels in September (Median was 70 mbps previously)

21) TX: Univ. Texas - Austin

Rating: Continued **Good**

Teams: ICESAT   Domain: utexas.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/TEXAS.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-ICESAT	43.2	41.3	23.0	Abilene via NISN / MAX
GSFC-MAX	44.5	44.3	43.8	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'03, 05	10.7, 11.1	**Good**

Comments: Performance from GSFC-MAX and ICESAT-SCF at GSFC via Abilene has been very stable since July '03; with somewhat less congestion at ICESAT. The rating remains "Good" (would be "Excellent" from GSFC-MAX).

22) VA, LaRC: SAGE III MOC: Rating: Continued **Excellent**

Teams: SAGE III   Domain: larc.nasa.gov
Web Page: http://ensight.eos.nasa.gov/Missions/sage/SAGE_MOC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-SAFS	7.0	6.7	3.9	NISN PIP

Requirements:

Source Node	FY	mbps	Rating
GSFC SAFS	'02 – '05	0.20	**Excellent**

Comments: Stable thruput since upgrade of LaRC MOC machine in Feb '03. Rating continues "Excellent"

23) WA, Pacific Northwest National Lab: Rating: Excellent → N/A

Teams: MISR   Domain: pnl.gov
Web Page: http://ensight.eos.nasa.gov/Missions/terra/PNNL.shtml

Test Results: None

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'03-'05	1.4	**Excellent**

Comments: This test node went down in mid November '04 and has not recovered. Testing will not resume until the test node is restored. Previous performance from LaRC to PNNL had been stable; rated "Excellent". Thruput had also been extremely stable from GSFC.

24) WA, Univ Washington: Rating: ↑ Adequate → **Good**

Teams: ICESAT   Domain: washington.edu
Web Page: http://ensight.eos.nasa.gov/Missions/icesat/UW.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC-ICESAT	70.9	51.0	16.3	Abilene via NISN/MAX
GSFC-MAX	61.6	54.3	40.8	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04, '05	11.3, 11.7	**Good**

Comments: Like other ICESAT sites, congestion from the ICESAT test node was still present, but at a reduced level. All measurements above were stable except for the daily worst from ICESAT, which was only about 8 mbps last report. The median daily worst from ICESAT is now above the requirement; increasing the rating to "Good" – but would be "Excellent" from GSFC-MAX.

25) WI, Univ. of Wisconsin:

Ratings: GSFC: Continued Good
LARC: Continued Adequate

Teams: MODIS, CERES, AIRS   Domain: ssec.wisc.edu
Web Page: http://ensight.eos.nasa.gov/Missions/terra/WISC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
G-DAAC	68.6	44.3	17.2	MAX / Abilene / Chi / MREN
LaTIS	15.8	11.5	4.9	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'04 - '05	16.5	Good
LaRC Combined	'03, '04, '05	6.8, 7.5, 7.9	Adequate

Comments: Performance from both sites was noisy but long term stable; the rating from GSFC remains "Good" and from LaRC remains "adequate".

26) Canada, Univ of Toronto:

Rating: Continued Excellent

Team: MOPITT   Domain: physics.utoronto.ca
Web Page: http://ensight.eos.nasa.gov/Missions/terra/TORONTO.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC→ IST	4.8	3.6	2.3	NISN / Chicago / CA*net4
LaRC DAAC → Test Node	25.4	20.6	9.7	NISN / Chicago / CA*net4
GSFC → IST	6.5	5.7	4.0	NISN / Chicago / CA*net4
GSFC→ Test Node	63.9	52.6	33.6	MAX / Abilene / Chicago / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '05	100	Excellent
GSFC EOC	'02 - '05	512	Excellent

Comments: Flows to the Toronto IST node were switched from the dedicated NISN T1 to CA*net4 in late October '04. Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) to the IST at Toronto improved (was about 1.4 mbps via the private T1), but is considerably lower than to the test node, also on campus. The rating remains "Excellent".

27) Italy, EC - JRC: Rating: Continued Good

Teams: MISR   Domain: ceo.sai.jrc.it
Web Page: http://ensight.eos.nasa.gov/Missions/terra/JRC.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	3.10	2.99	0.87	NISN / UUnet / Milan
GSFC-NISN	3.39	3.29	1.37	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '05	517	Good

Comments: Performance noisy but stable from both sources since July '03; the rating remains "Good".

28) Netherlands, KNMI: Rating: Continued Excellent

Teams: OMI   Domain: nadc.nl
Web Pages: http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml
                    http://ensight.eos.nasa.gov/Missions/aura/KNMI.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX → OMI PDR Server	23.7	23.5	18.0	MAX / Abilene/ NY / Surfnet
GSFC-MAX → OMI Backup PDR Server	38.2	33.1	28.3	MAX / Abilene/ NY / Surfnet
GSFC-MAX → KNMI Test Node	92.2	92.1	92.1	MAX / Abilene/ NY / Surfnet
GSFC-NISN → KNMI Test Node	32.1	20.2	3.2	NISN / Chi (?) / GBLX / Surfnet

Requirements: (2 ISTs Only)

Source Node	FY	Mbps	Rating
GSFC	'04 – '05	1.02	Excellent

Comments: Performance via Abilene and Surfnet is very stable to both the OMI PDR servers and the KMNI Test node. This is exceptionally good performance for US to Europe!

However, the NISN route exhibits much lower performance and extreme noisiness.

Note: Previously, Abilene policy prevented NISN from using the Abilene / Surfnet route. However, a recent policy change would allow this route – it would improve performance.

29) Russia, CAO (Moscow):   Rating: Continued **Excellent**

Teams: SAGE III   Domain: mipt.ru
Web Pages: http://ensight.eos.nasa.gov/Missions/sage/CAO.shtml
                  http://ensight.eos.nasa.gov/Missions/sage/LARC_SAGE.shtml

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	**Median**	**Worst**	
CAO → LaRC	119	119	109	MIPT / TCnet / NISN SIP
CAO → LaRC	1021	779	420	Commodity Internet
LaRC → CAO	149	148	129	NISN SIP / TCnet / MIPT
LaRC → CAO	2869	1205	338	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02 – '05	26	**Excellent**
LaRC → CAO	'02 – '05	26	**Excellent**

Comments: Performance testing running since November '02, with dual routes. Performance on the NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions, with a rating (based on the modest requirement) of "Excellent".

The dual route configuration also allows testing via the commodity internet route. Performance via the internet route is much better, but is also more variable, and also would rate "Excellent".

30) UK, London: (UCL SCF)   Rating: Continued Good

Teams: MODIS, MISR   Domain: ucl.ac.uk
Web Page: http://ensight.eos.nasa.gov/Missions/terra/UCLSCF.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
LaRC DAAC	14.0	3.1	1.2	NISN / Level3 (San Jose) / London
GSFC MAX	49.2	48.6	44.6	MAX / Abilene / NY / GEANT / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '05	1.03	**Good**

Comments: The route from LDAAC is still via NISN / Level3 peering in San Jose (since approx January '04). Performance is very noisy on this route, as indicated by the approximately 10:1 ratio between the daily best and worst. The daily worst is now barely above the requirement, so the rating continues "Good".

Note: This is another good opportunity to benefit from the recent Abilene policy change, allowing our NISN data to transit Abilene to international destinations.

Performance from GSFC remains very stable and much higher than via the NISN / Level3 route; it would be rated "Excellent".

31) UK, Oxford: Rating: Continued **Excellent**
Teams: HIRDLS   Domain: ox.ac.uk
Web Page: http://ensight.eos.nasa.gov/Missions/aura/OXFORD.shtml

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC	4.12	4.08	2.72	MAX / Abilene / NY / GEANT /JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '04	512	**Excellent**

Comments: Very steady performance continues since May '03, rating "Excellent" compared to the IST requirement.

Test Results to other EOS HIRDLS UK Sites (Requirements TBD):
Web Page: http://ensight.eos.nasa.gov/Missions/aura/UK_RAL.shtml

Source → Dest	Medians of daily tests (mbps)			Route
	Best	**Median**	**Worst**	
GSFC → RAL	31.8	24.2	11.8	MAX / Abilene / NY / GEANT /JAnet

Comments: Thruput to RAL remains noisy, but quite good, and about the same as the last report. .